

Application No. 10/825,139
Amendment dated April 3, 2008
Reply to Office Action of October 3, 2007

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A non-intrusive device for allowing spectrum analysis of a confined process stream through ~~a light-transmitting conduit section of a process line, comprising a light-transmitting conduit section having a circular wall defining a closed section through which the process stream flows,~~ a clip adapted to be externally mounted on the light-transmitting conduit section, said clip being at least partly made of a light-transmitting material, an input fiber optic cable connectable to said clip and having a light delivery end disposed outside of the conduit section on a first side thereof for directing a beam of light from a source of light through ~~a the circular wall of the conduit section and transversally through the process stream flowing through the conduit section, the light delivery end of the input fiber optic cable being separated from the process stream by the circular wall of the conduit section,~~ an output fiber optic cable connectable to said clip and having a receiving end disposed outside of the conduit section for transmitting light emanating from the circular wall of the conduit section to a light-receiving sensor, and wherein said clip includes a hollow body housing at least one optical element, the optical element focussing the light emanating from the input fiber optic cable transmitted across the conduit section and the wall thereof into the output fiber optic cable transversely through the process stream and the circular wall of the light-transmitting conduit section, the optical element being disposed ~~on a second side of the conduit opposite said first side between an outer surface of the conduit section and the receiving end of the output fiber optic cable~~ remotely outside of the light-transmitting conduit section, the circular wall of the conduit section preventing the process stream from contacting the optical element, the input and output fiber optic cables.

2. (Original) A non-intrusive device as defined in claim 1, wherein said clip is adapted to be releasably secured about the light-transmitting conduit section.

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3. (Original) A non-intrusive device as defined in claim 1, wherein said clip is adjustable so as to be securable on light-transmitting conduits having different cross-sectional dimensions.

4. (Previously Presented) A non-intrusive device as defined in claim 1, wherein said body defines a peripheral slot for receiving interchangeable conduit adapters adapted to grip conduits of different external diameters.

5. (Original) A non-intrusive device as defined in claim 4, wherein said clip further includes a removable cover for maintaining a selected one of said interchangeable conduit adapters captive in said peripheral slot.

6. (Previously Presented) A non-intrusive device as defined in claim 1, wherein said body defines a peripheral slot having walls made of a light-transmitting material.

7. (Previously Presented) A non-intrusive device as defined in claim 6, wherein said body has a first connector adapted to be connected to the input fiber optic cable to direct the beam of light through said peripheral slot and through the light-transmitting conduit section on which the clip is mounted, and wherein said at least one optical element comprises a lens.

8. (Original) A non-intrusive device as defined in claim 7, wherein said body has a second connector adapted to be connected to a light-receiving sensor for receiving the light emanating from the process stream through the light-transmitting conduit and the peripheral slot of the clip.

9. (Previously Presented) A non-intrusive device as defined in claim 8, wherein said second connector is connectable to said light-receiving sensor via the output fiber optic cable.

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10. (Previously Presented) A non-intrusive device as defined in claim 1, wherein said body has a peripheral slot defining an optical path therethrough for receiving and conducting the beam of light through the light-transmitting conduit section of the process line, said at least one optical element collecting the light transmitted through the conduit section.

11. (Previously Presented) A non-intrusive device as defined in claim 10, wherein a conduit adapter is removably installed in said slot, said conduit adapter having a base wall from which extends a pair of spaced-apart conduit gripping arms adapted to receive therebetween the light-transmitting conduit section, wherein said conduit adapter is at least partly made of a light-transmitting material.

12. (Currently Amended) A conduit-mounted light-transmitting device in combination with a light-transmitting conduit section mounted in a process line for allowing optical analysis of a substance in the process line, the light-transmitting conduit section having a tubular light-transmitting wall defining an inner passage for conveying the substance, the conduit-mounted light-transmitting device comprising a clip detachably securable about the conduit section, said clip defining an optical path ~~intersecting the conduit section~~ extending through said tubular light-transmitting wall and said inner passage when said clip is secured ~~thereabout~~ about the conduit section, wherein said clip has a substantially hollow body having a conduit engaging section by which said body is releasably mounted directly on the light-transmitting conduit section, said optical path extending through said conduit engaging section for receiving and conducting a beam of light through the light-transmitting conduit section, and at least one optical element housed within said body for collecting the light transmitted through the conduit section, said optical element focussing the transmitted light transmitted through ~~a-the tubular light-transmitting~~ wall of the conduit section into an output fiber optic cable removably coupled to the clip via a connector provided on said body, the optical element being disposed externally of the light transmitting conduit section between an outer surface of the light transmitting conduit section and the output fiber optic cable.

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13. (Original) A combination as defined in claim 12, wherein said conduit engaging section includes an open ended slot defined in one face of the body, and a conduit adapter removably installed in said open ended slot, said conduit adapter having a base wall from which extends a pair of spaced-apart conduit gripping arms for receiving therebetween the light-transmitting conduit section, wherein said conduit adapter is at least partly made of a light-transmitting material.

14. (Previously Presented) A combination as defined on claim 12, wherein said body has a first connector adapted to be connected to an input fiber optic cable to direct a beam of light through said conduit engaging section and through the light-transmitting conduit section on which the clip is mounted.

15. (Cancelled)

16. (Original) A combination as defined in claim 12, wherein light-transmitting material is selected from a group consisting of: near infrared transmitting material and infrared transmitting material.

17. (Original) A combination as defined in claim 14, wherein said clip includes a body having a conduit-engaging section, said conduit engaging section being made of a light-transmitting material.

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)